CLAIMS

1. Nucleotide sequence of sequence SEQ ID No. 1 of the genome of PWD circovirus.

2. Nucleotide sequence of PWD circovirus, characterized in that it is selected from:

a) a nucleotide sequence of a specific fragment of the sequence SEQ ID No. 1;

b) a nucleotide sequence homologous to a nucleotide sequence such as defined in a);

c) a nucleotide sequence complementary to the sequence SEQ ID No. 1 or complementary to a nucleotide sequence such as defined in a) or b), and a nucleotide sequence of their corresponding RNA;

d) a nucleotide sequence capable of hybridizing under stringent conditions with a sequence such as defined in a), b) or c);

e) a nucleotide sequence comprising the sequence SEQ ID No. 1 or a sequence such as defined in a), b), c) or d); and

f) a nucleotide sequence modified by a nucleotide sequence such as defined in a), b), c), d) or e).

3. Nucleotide sequence according to Claim 2, characterized in that it is selected from the sequences ORF1 to ORF3.

4. Nucleotide sequence according to Claim 2, characterized in that it comprises a nucleotide sequence selected from:

a) a nucleotide sequence ORF1, ORF2 or ORF3 according to Claim 3;

b) a nucleotide sequence of a specific fragment of a sequence ORF1, ORF2 or ORF3 according to Claim 3 or a sequence such as defined in a);

c) a homologous nucleotide sequence having at least 80% identity with a nucleotide sequence ORF1, ORF2 or ORF3 according to Claim 3 or such as defined in a) or b);

d) a complementary nucleotide sequence or sequence of RNA corresponding to a sequence ORF1, ORF2 or ORF3 according to Claim 3 or such as defined in a), b) or c); and

e) a nucleotide sequence modified by a sequence ORF1, ORF2 or ORF3 according to Claim 3 or such as defined in a), b), c) or d).

5. Nucleotide sequence according to one of Claims 2 to 4, characterized in that the specific fragment nucleotide sequence comprises a nucleotide sequence selected from the following sequences:

a) 5' TGTGGCGA 3';
b) 5' AGTTTCCT 3';
c) 5' TCATTTAGAGGGTCTTTCAG 3';
d) 5' GTCAACCT 3';
e) 5' GTGGTTGC 3';
f) 5' AGCCCAGG 3';
g) 5' TTGGCTGG 3';
h) 5' TCTAGCTCTGGT 3';
i) 5' ATCTCAGCTCGT 3';
j) 5' TGTCCTCCTCTT 3';
k) 5' TCTCTAGA 3';
l) 5' TGTACCAA 3';
m) 5' TCCGTCTT 3';

and their complementary sequence.

6. Polypeptide encoded by a nucleotide sequence according to one of Claims 1 to 5.

7. Polypeptide according to Claim 6, characterized in that its sequence is represented by a specific fragment of one of the six sequences of amino acids shown in Figure 3.

8. Polypeptide according to Claim 7, characterized in that it is selected from the sequences SEQ ID No. 2, SEQ ID No. 3 and SEQ ID No. 4.

9. Polypeptide characterized in that it comprises a polypeptide selected from:

a) a polypeptide according to Claim 8;

b) a specific fragment of at least 5 amino acids of a polypeptide according to Claim 8, or such as defined in a);

c) a polypeptide homologous to a polypeptide according to Claim 8, or such as defined in a) or b);

d) a specific biologically active fragment of a polypeptide according to Claim 8, or such as defined in a), b) or c); and

e) a polypeptide modified by a polypeptide according to Claim 8, or such as defined in a), b), c) or d).

10. Nucleotide sequence coding for a polypeptide according to Claim 9.

11. Nucleotide sequence utilizable as a primer or probe, characterized in that said sequence is selected from the nucleotide sequences according to one of Claims 1 to 5 and 10.

12. Nucleotide sequence according to Claim 11, characterized in that said sequence is one of the primer of the pairs of primers selected from the following pairs:

a) 5' GTG TGC TCG ACA TTG GTG TG 3', and
5' TGG AAT GTT AAC GAG CTG AG 3';

b) 5' GTG TGC TCG ACA TTG GTG TG 3', and
5' CTC GCA GCC ATC TTG GAA TG 3';

c) 5' CGC GCG TAA TAC GAC TCA CT 3', and
5' GTG TGC TCG ACA TTG GTG TG 3';

d) 5' CGC GCG TAA TAC GAC TCA CT 3', and
5' CTC GCA GCC ATC TTG GAA TG 3'.

13. Nucleotide sequence of porcine circovirus other than PWD circovirus, characterized in that said sequence is a specific consensus sequence and in that it is part of the following pair of primers:

a) 5' GTG TGC TCG ACA TTG GTG TG 3', and
5' TGG AAT GTT AAC TAC CTC AA 3'.

14. Nucleotide sequence according to one of Claims 11 to 13, characterized in that it is labeled by a radioactive compound or by a nonradioactive compound.

15. Nucleotide sequence according to one of Claims 11 to 14, characterized in that it is covalently or noncovalently immobilized on a support.

16. Nucleotide sequence according to one of Claims 10 to 13, for the detection and/or the amplification of nucleic sequences.

17. Cloning and/or expression vector, characterized in that it contains a nucleotide sequence according to one of Claims 1 to 5 and 10.

18. Vector characterized in that it comprises a nucleotide sequence according to one of Claims 1 to 5 and 10, and in that it additionally comprises a gene of interest.

19. Viral pseudoparticle or particle generated from a vector according to one of Claims 17 to [sic] 18.

20. Host cell, characterized in that it is transformed by a vector according to one of Claims 17 to [sic] 18, or a viral particle according to Claim 20.

21. Animal, comprising a cell transformed according to Claim 20.

22. Procedure for preparation of a polypeptide, characterized in that it employs a vector according to one of Claims 17 and 18, a cell transformed by said vector and/or an animal comprising said transformed cell.

23. Recombinant polypeptide capable of being obtained by a procedure according to Claim 22.

24. Procedure for preparation of a synthetic polypeptide, characterized in that it uses an amino acid sequence of a polypeptide according to one of Claims 6 to 9.

25. Synthetic polypeptide obtained by a procedure according to Claim 24.

26. Hybrid polypeptide, characterized in that it contains at least the sequence of a polypeptide

according to one of Claims 6 to 9, 23 and 25, and a sequence of a polypeptide capable of inducing an immune response in man or animals.

27. Hybrid polypeptide according to Claim 26, characterized in that it contains at least the sequence of a polypeptide according to one of Claims 6 to 9, 23 and 25, and a sequence of a polypeptide capable of inducing a humoral and/or cellular response in man or animals.

28. Nucleotide sequence coding for a hybrid polypeptide according to one of Claims 26 and 27.

29. Vector characterized in that it contains a nucleotide sequence according to Claim 28.

30. Hybrid polypeptide according to one of Claims 26 and 27, characterized in that it is a recombinant polypeptide obtained by the employment of a vector according to Claim 29.

31. Procedure for the detection and/or the identification of PWD circovirus in a biological sample, characterized in that it comprises the following steps:

a) contacting of the biological sample with a polypeptide according to one of Claims 6 to 9, 23 and 25;

b) demonstration of the antigen-antibody complex possibly formed.

32. Kit or set for the detection and/or the identification of PWD circovirus, characterized in that it comprises the following elements:

a) a polypeptide according to one of Claims 6 to 9, 23 and 25;

b) if need be, the reagents for the formation of the medium favorable to the immunological reaction;

c) the reagents allowing demonstration of the antigen-antibody complexes possibly formed between the polypeptide(s) of the invention and the antibodies;

d) if need be, a biological reference sample (negative control) devoid of antibodies recognized by said polypeptide;

e) if need be, a biological reference sample (positive control) containing a predetermined quantity of antibodies recognized by said polypeptide.

33. Mono- or polyclonal antibodies, their fragments, or chimeric antibodies, characterized in that they are capable of specifically recognizing a polypeptide according to one of Claims 6 to 2, 23 and 25.

34. Antibody according to Claim 33, characterized in that it is a labeled antibody.

35. Procedure for the detection and/or the identification of PWD circovirus in a biological sample, characterized in that it comprises the following steps:

a) contacting of the biological sample with an antibody according to one of Claims 33 or 34;

b) demonstration of the antigen-antibody complex formed.

36. Kit or set for the detection and/or the identification of PWD circovirus, characterized in that it comprises the following elements:

a) a polyclonal or monoclonal antibody according to one of Claims 33 or 34;

b) if need be, the reagents for the formation of the medium favorable to the immunological reaction;

c) the reagents allowing the demonstration of the antigen-antibody complexes produced by the immunological reaction.

37. Procedure for detection and/or identification of PWD circovirus or of porcine circovirus other than the PWD circovirus in a biological sample, characterized in that it employs a nucleotide sequence according to one of Claims 11 to 16.

38. Procedure according to Claim 37, characterized in that it contains the following steps:

a) if need be, isolation of the DNA from the biological sample to be analyzed;

b) specific amplification of the DNA of PWD circovirus with the aid of at least one primer according to one of Claims 11 to 16;

c) demonstration of the amplification products.

39. Procedure according to Claim 37, characterized in that it comprises the following steps:

a) contacting of a nucleotide probe according to one of Claims 11 to 16 with a biological sample, the DNA contained in the biological sample having, if need be, previously been made accessible to hybridization under conditions allowing the hybridization of the probe with the DNA of the sample;

b) demonstration of the hybrid possibly formed between the nucleotide probe and the DNA of the biological sample.

40. Procedure according to Claim 37, characterized in that it comprises the following steps:

a) contacting of a nucleotide probe immobilized on a support according to Claim 15 with a biological sample, the DNA of the sample having, if need be, previously been made accessible to hybridization under conditions allowing the hybridization of the probe with the DNA of the sample;

b) contacting of the hybrid formed between the nucleotide probe immobilized on a support and the DNA contained in the biological sample, if need be after elimination of the DNA of the biological sample which has not hybridized with the probe, with a nucleotide probe labeled according to Claim 14;

c) demonstration of the novel hybrid formed in step b).

41. Procedure according to Claim 40, characterized in that, previously to step a), the DNA of the biological sample is amplified with the aid of at least one primer according to one of Claims 11 to 16.

42. Kit or set for the detection and/or the identification of associated PWD circovirus, characterized in that it comprises the following elements:

a) a nucleotide probe according to one of Claims 11 to 16;

b) if need be, the reagents necessary for the carrying out of a hybridization reaction;

c) if need be, at least one primer according to one of Claims 11 to 16, as well as the reagents necessary for an amplification reaction of the DNA.

43. Kit or set for the detection and/or the identification of PWD circovirus or of porcine circovirus other than the PWD circovirus, characterized in that it comprises the following elements:

a) a nucleotide probe, a so-called capture probe, according to Claim 15;

b) an oligonucleotide probe, called a revealing probe, according to Claim 14;

c) if need be, at least one primer according to one of Claims 11 to 16, as well as the reagents necessary for an amplification reaction of the DNA.

44. Kit or set for the detection and/or the identification of PWD circovirus or of porcine circovirus other than the PWD circovirus, characterized in that it comprises the following elements:

a) at least one primer according to one of Claims 11 to 16;

b) if need be, the reagents necessary for carrying out a DNA amplification reaction;

c) if need be, a component allowing the sequence of the amplified fragment to be verified, more

particularly an oligonucleotide probe according to one of Claims 11 to 16.

45. Procedure or kit or set according to one of Claims [lacuna], for the diagnosis of an infection by the PWD circovirus or by a porcine circovirus other than the PWD circovirus.

46. Use of a nucleotide sequence according to one of Claims 1 to 5 and 10, of a polypeptide according to one of Claims 6 to 9, 23 and 25, of an antibody according to one of Claims 33 and 34, of a cell according to Claim 20, and/or of an animal transformed according to Claim 21, for the selection of organic or inorganic compounds capable of modulating, inducing or inhibiting the expression of genes, and/or of modifying the cellular replication of the PWD circovirus or capable of inducing or of inhibiting in pigs the pathologies linked to an infection by the PWD circovirus.

47. Method for selecting a compound capable of binding to a polypeptide according to one of Claims 6 to 9, 23 and 25, capable of binding to a nucleotide sequence according to one of Claims 1 to 5 and 10, or capable of recognizing an antibody according to Claim 33, and/or capable of modulating, inducing or inhibiting the expression of genes, and/or of modifying the cellular replication of the PWD circovirus, or capable of inducing or inhibiting in pigs the pathologies linked to an infection by the PWD circovirus, characterized in that it comprises the following steps:

a) contacting of said compound with said polypeptide, said nucleotide sequence, with a cell transformed according to Claim 20, and/or administration of said compound to an animal transformed according to Claim 21;

b) determination of the activity of said compound.

48. Compound capable of being selected by a method according to Claim 47.

49. Pharmaceutical composition comprising a compound selected from the following compounds:

a) a nucleotide sequence according to one of Claims 1 to 5 and 10;

b) a polypeptide according to one of Claims 6 to 9, 23, 25 to 27 and 30;

c) a vector or a viral particle according to one of Claims 17 to 19 and 29, or a cell according to Claim 20;

d) an antibody according to Claim 33; and

e) a compound according to Claim 48.

50. Composition according to Claim 49, possibly in combination with a pharmaceutically acceptable vehicle.

51. Pharmaceutical composition according to one of Claims 49 and 50, for the prevention or the treatment of an infection by the PWD circovirus.

52. Vaccine composition, characterized in that it comprises one or more polypeptides according to one of Claims 6 to 9, 23 and 25 and/or one or more hybrid polypeptides according to one of Claims 26, 27 and 30.

53. Use of a cell according to Claim 20, for the preparation of a vaccine composition.

54. Vaccine composition, characterized in that it contains a nucleotide sequence according to one of Claims 1 to 5, 10 and 28, a vector according to one of Claims 17, 18 and 29, and/or a cell according to Claim 20.

55. Vaccine composition according to one of Claims 52 and 54 for the prevention or the treatment of an infection by the PWD circovirus.

56. Vaccine composition according to one of Claims 52, 54 and 55, in combination with a pharmaceutically acceptable vehicle and, if need be, one or more appropriate adjuvants of immunity.

57. Vector according to Claim 18, viral particle according to Claim 19, or cell according to Claim 20, for the treatment and/or the prevention of a disease by gene therapy.

58. Pharmaceutical composition comprising, as therapeutic or prophylactic agent, a vector according to Claim 18, a viral particle according to Claim 19 or a cell according to Claim 20.

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